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PRIMARY SCIENCE

Stage 5

Plants And Their Uses

Teacher Notes

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1. Science—Study and teaching (Primary)—Northern Territory.
 2. Aborigines, Australian—Education (Primary)—Northern Territory.
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UNIT PLANNER

TOPIC: Plants and their uses

Learning Outcomes

Students will develop an understanding of:

- the needs of plants
- the identification of some local plants
- the various uses of some plants
- basic classification of plants
- how the properties of plants affect their uses.

Strand	Sequence of Lessons	References
<input checked="" type="checkbox"/> Working Scientifically <input type="checkbox"/> Earth and Beyond <input type="checkbox"/> Energy and Change <input checked="" type="checkbox"/> Life and Living <input type="checkbox"/> Natural and Processed Materials	How can We use Plants? Collecting and Sorting Plants in Season Plants for Health Plants for Food Making Life Easier Growing Your Own Poisonous Plants Plant Book	Isaacs, J., 1987, <i>Bush Food Aboriginal Food and Herbal Medicine</i> , Ure Smith, Sydney Aboriginal Communities of the Northern Territory, 1993, <i>Traditional Aboriginal Medicines in the Northern Territory</i> , CCNT, Darwin Wightman, G. & Andrews, M., 1991, <i>Bush Tucker Identification</i> , CCNT, Darwin
Organisers Taken from NTBOS 1997, <i>Science Years 7-10 Board Approved Course of Study</i> Structure and function, level 3 Living together, level 3		

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TEACHER INFORMATION

This unit relies heavily on the involvement of Aboriginal people in your community to identify the local plants and their uses.

Students will need the understandings and knowledge gained in the Stage 4 unit *Flowering Plants* in order to do this unit. Therefore you may wish to revise the unit or redo some of the appropriate activities in it.

The first activity in this unit is the most important as the following activities will depend on the information you have gathered first. This should be shown on the retrieval chart. From this information you will need to decide how to go on. You may wish to look at the parts of plants and what they are used for or the uses of plants and which parts are important.

You may wish to collect new plants with each activity or use the ones you collected in the first activity if you can keep them reasonably fresh.

If you are unable to get an Aboriginal person in the community to assist with this unit you can focus on food from plants that are bought at the store.

There are some information sheets provided about specific plants. We have tried to include plants from the Top End and the Centre of the Northern Territory but they may not all be appropriate for your community. Some communities may not make use of some specific plants that are found in their region. You will need to check this with Aboriginal members of your community.

In teaching these science concepts and the particular language required, teachers are encouraged to apply ESL strategies, as the majority of Indigenous students in the Northern Territory have a first language other than English. See the page on ESL Strategies following.

New words have been listed for each activity in a Vocabulary section. They will need explaining and checking for comprehension. In addition, some key language structures and features, and texts/genres are listed for each activity. See *Getting Going with Genres* (NT Dept. of Education 1993) for more information.

This unit of work uses learning outcomes from level 3 of the strands Working Scientifically and Life and Living, which are part of the *NT Outcomes Profile Science T-10*. It is designed for use with primary students at Year 5 level.

The NT Board of Studies *Subject Curriculum Statement: Science T-10* recommends that science be taught in primary schools for two hours per week. This unit comprises 10 one hour activities which should therefore take around 5 weeks to cover.

Each activity has tasks that are designed to help the students understand the key ideas. There are information sheets to provide background information for the students. Students are assessed through observations in investigations, completion of activities and worksheets and their contribution to discussions.

CULTURAL CONSIDERATIONS

The NT Science Board Approved Course of Study (BACOS) reflects mainly Western scientific understandings. In some instances these understandings may be different from the beliefs of the students. It is recommended that teachers help students understand both ways of looking at the world. It is important to emphasise that one view is not seen as better or more valid than the other. These Primary Science Units do this through the *Cultural Considerations* section. Cultural considerations will usually be listed with each activity. Some of these may be appropriate for your community and some may not. Those listed will be generalisations as it is not appropriate for us to include cultural considerations for every community.

You need to find out which cultural considerations are appropriate for your community. Spaces will be left in this section for you to write in the relevant cultural considerations. It is important to involve an Aboriginal person from the community when deciding how you will do this. The only way to find out if the cultural considerations are appropriate is by involving community Elders. By teaching the students that there are two ways of explaining science concepts, the students can learn about the Western science idea and also value their own beliefs. It is always important to involve community members.

SAFETY

Safety issues are very important to consider when teaching science. This is particularly so if you are using electrical equipment, fire or chemicals. Make sure you are providing a safe environment for your students. The following pointers will help to ensure 'safe science'.

Make sure students:

- follow instructions carefully
- use the equipment the way they should
- are careful when handling apparatus
- wipe up anything that is spilt straight away
- dispose of mixtures of chemicals where they won't hurt anybody
- keep work areas organised, neat and tidy.

BRAINSTORMING

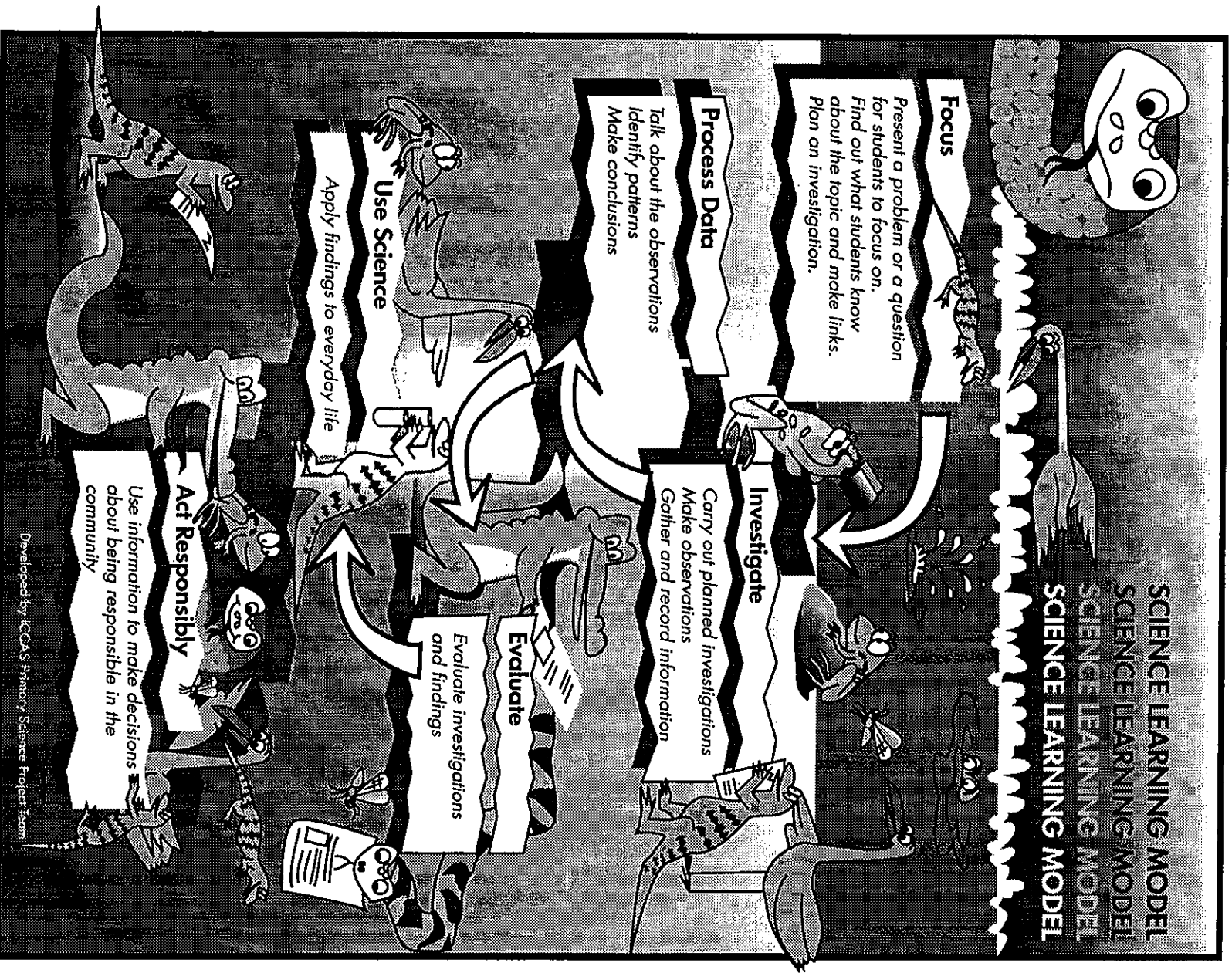
Often we will suggest that you get the students to brainstorm a question. This process means you allow students to call out anything they think might be right. You should record everything on a list that all the students can see. Try to get a response from all your students. Crazy ideas are useful because they encourage everyone to contribute and they may spark other ideas. It is important not to judge students' ideas until the brainstorming is finished. Then you and the students can decide which ideas might be useful.

HINTS

When teaching these science lessons you may not be exactly sure what responses / answers are required from the students. This can be especially difficult if English is your second language. We do not expect teachers to be experts at science, so occasionally we provide hints which will be written in *italics*. *Italics look like this*. These hints will help you to teach the key science ideas.

TEACHING/LEARNING MODEL

The activities in this unit will follow this teaching/learning model. Each step of the teaching/learning model will not be used in every activity and sometimes some steps will occur more than once in an activity. Sometimes the steps will be in a different order. The diagram below shows the sequence of steps that will be used frequently.





ESL STRATEGIES FOR SCIENCE TEACHERS

In using the Science Teaching/Learning Model with Indigenous students, teachers should incorporate ESL strategies where appropriate into the learning sequence:

- respect students' first language, background knowledge and science concepts
- expect that students will learn (teacher expectation has a profound impact on student performance)
- provide opportunities for students to talk about science concepts in English
- make sure students understand the purpose of science activities and encourage them to discuss what they are doing and why
- encourage students to do and say things for themselves
- check the Vocabulary section of each science activity for any new words
- use these new words before, during and after the science activity
- present new vocabulary through shared experiences, using concrete objects or pictures
- use the language of science when the students are doing science
- help students to explore and practise the English language from shared experiences
- be good models for oral language
- be good models by recording in writing
- provide plenty of scaffolding in the beginning stages
- provide opportunities for repetition
- review, repeat and revisit situations and experiences so that students can revise vocabulary and add to it
- use science activities to encourage the risk-taking involved in using 'new' vocabulary
- use real-life contexts, examples and materials whenever possible
- make sure students work in pairs and small groups so they can help one another and feel secure enough to take risks
- present work in multi-sensory ways, e.g. visual, aural, touch and smell
- allow time for students to comprehend, respond, memorize and learn
- allow time in their programs for individual efforts in speaking and writing
- give students confidence by
 - setting achievable tasks
 - working at a pace that suits the students
 - giving constant positive reinforcement and encouragement
 - working orally before expecting written texts
 - working from known to unknown situations
 - working from simple to more complex concepts
 - working from whole to parts to whole
 - working from concrete to abstract
- assess students' understandings in a variety of ways.

Students often prefer to

- learn by observation and imitation rather than by verbal instruction
- learn by personal trial and error rather than by verbal instruction with demonstration
- learn in real-life settings rather than by practice in artificial settings
- learn context-specific skills rather than generalised principles